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ABSTRACT

This paper presents the results of the implementation of an instructional approach that supports teachers' learning of instructional design (ID) and honors their beliefs and concerns within the ID process; participants included two instructors and 23 practicing K-12 teachers enrolled in an instructional design course as part of a masters program. The theoretical framework that supports this inquiry is presented, including how ID is viewed and consequently taught (the designer's view), how ID is used by teachers (the teacher's perspective), collaboration between teacher and designer, and teacher inquiry into their teaching. The research method is described, including the co-participatory, reflexive approach to instruction in which all participants were viewed as learners who continually reflected and appraised joint efforts at teaching and learning ID. Findings are summarized and related to ways that teachers used to describe and represent their practice in ID projects, personal ID models, and course evaluation. How the co-participatory approach helped teachers and designers to learn from each other is discussed. (Contains 50 references.) (MES)

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TEACHING INSTRUCTIONAL DESIGN: REFRAMING THE RELATIONSHIPS BETWEEN TEACHERS AND DESIGNERS

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Abstract

The purpose of this paper is to present the results of the implementation of an instructional approach that supports their learning of instructional design (ID) and honors teachers' beliefs and concerns within the ID process. We present the theoretical framework that supports this inquiry, summarize how instructional design is viewed and consequently taught (the designer's view), how ID is used by teachers (the teacher's perspective), followed by a summary of collaboration between teachers and designers, and teacher inquiry into their teaching. We describe our research method, including our instructional approach. We summarize ways that teachers used to describe and represent their practice in ID projects, personal ID models, and course evaluation, and how our co-participatory approach helped teachers and designers to learn from each other.

Introduction

Efforts at diffusing instructional design (ID) into teaching practice have largely been unsuccessful (Gustafson, 1993; Martin & Clemente, 1990). Such results are partly due to the different worlds that characterize the lives of designers and teachers. One means of diffusion has been through formal ID instruction. However, how one teaches instructional design comes to be viewed by newcomers as the means by which it ought to be conducted in practice. Its use by teachers may be limited if the process is represented to them as linear and overly prescriptive, or conducted via the use of one standard model. Instead, ID can be presented as a systematic and holistic process to examine and address instructional problems. Teachers can be introduced to a range of models and be encouraged to develop their own. An unrealized potential of ID instruction is to use it as a structured means to help teachers examine their teaching. Thus, ID instruction provides an important opportunity to establish meaningful relationships between teachers and designers.

The purpose of this paper is to explain the instructional approach and present the results of using that instructional approach that includes teachers' beliefs and concerns within the ID process itself and supports their learning of instructional design. We used a co-participatory, reflexive approach to instruction, in which we viewed all participants as learners who continually reflected and appraised our joint efforts at teaching and learning ID. Along with this stance on teaching, we used the ID process as a tool for us to learn about these teachers, as well as to guide them in a self-examination of their teaching stance, along with ID learning. Thus, inquiry was built into the ID process, embracing not only the traditional ID components of needs assessment and program evaluation, but beliefs examination. In this research, our inquiry is a study of our own teaching of instructional design with in-service teachers.

Theoretical Perspective On Learning

If an instructional approach is to empower learners, it must first honor the learners' role and agency in the construction of their own learning. Three basic tenets from contemporary learning theory inform this stance and serve as the foundation of our instructional approach. We begin with the notion that learning is a constructive process (e.g., Bartlett, 1932; Bruner, 1990). Knowledge and skills are developed through the building, linking, and clarifying of the personal experiences that arise as learners attempt to make sense of their worlds. This purposeful quest toward making meaning of life's complexities involves multiple components that comprise the learning enterprise: culture, cognition, affect, individual differences, and so forth. Along with this, we recognize that learning is developmental and historical (John-Steiner, 1997; Vygotsky, 1978). Prior learning experiences along with available strategies, influence how learners perceive the world and their role and possibilities within it.

Our second basic tenet holds the notion that learning is situated and mediated in social contexts (Brown, Collins & Duguid, 1989; Lave & Wenger, 1991). This social theory of learning is an intersection of theories of collectivity, subjectivity, power, and meaning that mediate our practice and, in turn, shape our identity (Wenger, 1998). Cognitive and communicative functions that are inherent in a specific social world are intimately entwined within everyday experiences (Lave & Wenger, 1991). Higher mental processes, such as reflection, have their origins in the community of learners in which one resides (Moll, 1990). As Vygotsky (1978) has written, learning is first at the interpersonal level, but that capable others help one move learning to an intrapersonal level. Consequently, it is

critical that the social milieu supports intellectual activity in order for its participants to fully realize their creative and problem solving potential (John-Steiner, 1997).

Our third basic tenet requires that we view teaching as assisting learners (Tharp & Gallimore, 1998). Here we mean that teachers and learners engage in a co-participative, responsive learning relationship that requires a mutuality that transcends the traditional and authoritative role of teacher and reactive and subordinate role of student. The construction of shared understandings through authentic, meaningful activity is the goal of the enterprise. This assistance in learning of ID resonates with the ideas of Rowland and colleagues (e.g., Rowland, Fixl & Yung, 1992) that instruction consists of authentic design tasks, modeling of design expertise, and reflective activities (Schön, 1987).

Perspectives On Instructional Design

How ID is taught is based on one's view of the ID process and can be regarded as the "designer's perspective." Researchers have configured instructional design as a systematic, problem solving process for designers (e.g., Dick & Carey, 1996; Gagné, Briggs & Wager, 1992). ID instruction has typically involved presentation of these models; in particular, models developed for novices (e.g., Dick & Carey, 1996) depict prescriptive processes that omit contextual features (Edmonds, Branch & Mukherjee, 1994). Attempts to develop ID models for teachers (Gerlach & Ely, 1980; Kemp, Morrison & Ross, 1996; Reiser & Dick, 1997; Wedman & Tessmer, 1990) have attempted to more closely approximate teacher tasks. However, systematic processes have proven difficult to transfer into a teacher's daily practice, due to the very individualistic and personal nature of teaching, the complexity of classrooms, and the multiple influences affecting their practice. Because teaching is a human activity, one model, especially one that was constructed by one other than the teacher who has to use it, is insufficient to be responsive to teacher needs. Thus, a process that represents algorithmic solutions to messy instructional problems is ultimately inappropriate to address teacher concerns.

Meanwhile, teachers' views of the ID process, the teacher's perspective, are due, in part, to how the ID process was taught to them and their experiences using the process. As Martin and Clemente (1990) have written, "The particular decisions we make as we teach ISD [Instructional Systems Development] and the amount of time or emphasis we give to aspects of ISD …affect how these aspects will ultimately be used in the classrooms" (p. 83). Studies have identified that teachers use some systematic practices (e.g., Branch, 1994; Kennedy, 1994), such as learner analysis, goal identification, and matching tasks and assessment to specific objectives. Other aspects of systematic practices have typically not been addressed by teachers in these studies, including the lack of media selection criteria, needs assessment with subject matter experts, learner characteristics, and matching assessment to overall goals. Studies in the differences between new and more experienced teachers (e.g., Driscoll, Klein & Sherman, 1994; Rowland, 1991) have shown that novice teachers focus on immediate tasks and objectives, while more experienced teachers take a broader view of instruction and goals. In these studies, teachers have cited time as a major impediment to using instructional design, that "ID is too time-consuming" or "There's not enough time to use the ID process." Instructional design, being a complicated process, does take time to learn. However, this initial view can jeopardize a teacher's perception and valuation of the process. The second category of responses, that "there's not enough time" is a broader institutional issue involving how others in the institution view the teacher's role and the expert outsider and a view of the complexity of teaching (e.g., Elbaz, 1983; Jackson, 1968; Lortie, 1975; Yinger, 1980). We maintain that the relationships between teacher and designer represent another category of impediments to the teacher's use of systematic processes. More specifically, how one views relationships needs to be examined. That is, the ways that teachers' personal practice and knowledge about teaching are honored in the learning event mediates the degree to which they consider instructional design as a tool either to examine or improve their teaching.

Collaboration Between Teacher And Designer

The diffusion of innovation in any institution is not simply a matter of implementing that innovation, but, rather is based on the interrelated factors of the features of the innovation, the relationship of the individual with the organization, and the personal characteristics of users (Doktor, Schultz & Slevin, 1979). The diffusion of instructional design into schools would likewise be influenced by these three interrelated factors. A teacher would assign a value to the innovation relative to other options (Leonard-Barton, 1987). How one teaches ID might carry great weight in how a student would make such a value decision, relative to that person's learning experiences and personal and professional needs. This value judgment might also be contingent on the teacher's relationship with the institution; in particular, the support and reward structures in place, as well as the relationships with the people in that institution. Another interconnected influence is the personal characteristics of the teachers. One set of characteristics could include years of experience, professional needs, technical competencies, and demographics (i.e., age and education). A second set of personal characteristics would include teachers' views towards learning and teaching, and dispositions towards themselves as learners and towards outside evaluators or experts.

The applied educational research enterprise concerns itself with practice rather than theory (LeCompte, 1995), and collaboration has been seen by evaluators and instructional designers as a "cure for some of their most difficult investigatory problems" (p. 94). Two such problems, according to Huberman (1991), are knowledge utilization and dissemination, or a "diffusion" issue (e.g., Gustafson, 1993). Huberman described this approach as the "two communities" problem, with differences "in norms, rewards, and sensibilities between the two" (LeCompte, p. 95) characteristics. Huberman characterized three variations of relationships between teacher-researcher communities (i.e., teacher-designer). The first relationship is "Hello-Goodbye," a short-term involvement in which the designer shows up on the scene, consults, designs, or evaluates, and departs. The second relationship is "Two Planets," in which the relationship is an interaction of different cultures, individuals circling around each other but never touching. The third relationship is labeled as the "Stand-Off," in which disagreement between the parties is the rule. Rather than facing differences and issues, the parties act from their respective positions without any intent to bring out differences in the open, to learn from each other's position, or to re-examine one's own position.

Rather than trying to increase teachers' knowledge base (i.e., utilization) as the aim of professional development, Rhine (1998) proposes that teachers' engagement with research should be stimulated by teachers who desire to inquire into student learning. "Our human, bounded rationality dictates the value of educational research to the teaching community is not the acquiring of research-based knowledge of students' understanding, but the process of teachers engaging with that knowledge and considering implications for their instruction" (p. 27). His reasoning is that teachers cannot know and process everything there is to know (bounded rationality). The aim, according to Rhine (1998), is to shift teachers' focus from teaching to inquiring into learner's thinking, although we view the shift as away from a view of teaching as management of students to ways in which teachers support students' learning. Rhine suggests that teachers need to be provided with guidelines on using research-based resources and provide access to these resources using "teacher-friendly" language and formats. Collaboration then requires the "building of relationships between research-based models of children's thinking, their own student's thinking, and how they can interpret the model in light of their own students and classrooms" (p. 29).

One way for teachers and instructional designers to consider each other's practices is to report the results of teacher planning/ID processes in publications each audience might read (Earle, 1994). Another forum for relationship building is through formal instruction, including teacher education, as well as graduate programs. A third possibility involves teachers and outside ID practitioners who might be conducting research in schools. Instructional designers should be encouraged to discover what's happening in schools and attempt to understand the lives of teachers, their clients.

Teacher Inquiry

The idea of teacher-as-researcher has been based on the idea that the teacher, who is at the forefront of what happens in classrooms, can contribute to knowledge building on teaching. This knowledge informs not only the teacher, but also can contribute to the educational community (Lytle & Cochran-Smith, 1990). Furthermore, teachers as researchers come to learn about and debate the research enterprise, about "what counts as new knowledge" and how one comes to arrive at this new knowledge. One way of implementing research into teaching lives has been action research (e.g., Duffield & Robinson, 1998; Keating, Diaz-Greenburg, Baldwin & Thousand, 1998; Somekh, 1997). Inquiry as action research adds data collection and analysis to the teacher's routine to help them become more objective in interpreting their experiences. Rather than making judgments, teachers use data to help them describe what is occurring and to provide a basis for action.

Reflective practices are another aim of action research. Reflection is an "active process providing an opportunity to look at past experiences and relate them to future action" (Keating et al, p. 383). Winn (1989) suggests a reflective practicum, in which Schön's (1987) reflection-about-action and reflection-in-action can be supported. Technical competencies are not enough (Quinn, 1994), that a creative supplement is also necessary (Rowland, Parra & Basnet, 1994), one that encourages flexibility and intuition based on experience (Nelson, Magliaro & Sherman, 1988), to address human instructional problems.

We propose the use of instructional design (ID) as a systematic, intellectual tool to help teachers' to "relate" past experiences to future action by (1) examining their learning beliefs and instructional practices and (2) designing responsive approaches to instructional problems. Thus, we view teachers within the ID process itself, structurally supporting teacher self-examination (inquiry), but also as a tool (technology) to systematically examine instructional problems and propose responsive, bounded solutions. Our view is that the tools of analysis, design, and evaluation within the ID process can help teachers to realize the differences and complexity of student's thinking. Rather than closing down the inquiry, or bounding the problem prematurely, our view of ID is to examine the possibilities inherent in any instructional problem. The value of the systems approach is "taking in the whole problem," while examining the component issues. Our view of ID for teacher use is that the process retains the bounded rationality of professionals, but ID's systematic features provide structure to keep learning in the forefront and continue to examine, design, and evaluate one's efforts.

Research Questions

Our research orientation included all participants, teachers and instructors. Thus, the research questions for this study included both.

1. How do teachers view teaching in what they designed?
2. How do teachers view teaching in what they represented?
3. How do teachers talk about their teaching?
4. In what ways does our co-participatory approach help teachers and designers (i.e., instructors) learn from each other?

Method

Participants And Setting

Participants included two instructors and 23 practicing teachers enrolled in an instructional design course, as part of a master's program sponsored jointly by their school system and a state university. The K-12 teachers' instructional responsibilities ranged across all disciplines and contexts (e.g., general education, special education, vocational-technical education, consulting teacher, and librarian). The focus of this master's program was the integration of instructional technology, and the curriculum was designed so that all coursework should be interrelated and projects emanate from the teachers' daily practice. The ID course (the second of a 10-course/30 credit-hour program) was offered in one of the county schools and met for three hours each week over a 15-week semester.

Instructional Approach

As instructors we were responsible for introducing these teachers to the formal instructional design process, and as such, our voices valued or signified this process by the way in which we advocated and modeled the ID process, using it to study our own teaching. Although we presented a traditional treatment of the process (i.e., analysis, design, evaluation), our instructions to the teachers were to use this framework as a tool to examine and bring forth for examination the process they use to guide their practice. Rather than depicting instructional design as a complex algorithm, we represented ID as a systematic means to examine important instructional issues before settling on a response. Instead of specifying a set of rules or procedures, which could not cover all contingencies of human learning, we advocated to teachers that they consider a range of possibilities that might responsively address the learning needs of their students (Magliaro & Shambaugh, 1997). We engaged them in tasks that would help them to try components, reflect on their appropriateness, and make revisions based on this reflection and our feedback.

Our reflexive approach to teaching instructional design views instructor and student as co-participatory learners, in which participants learn from each other (Shambaugh & Magliaro, 1995). As such, all participants are inquiring into their teaching practices, including the instructors for the course. Through constant dialogue (i.e., live communication, computer-mediated-communication), we all design with each other and serve as formative evaluators in a supportive and collegial way. Logistically, we create the participation structures, including classroom activities, learning tasks, electronic mail, individual conferences, and text (Shambaugh & Magliaro, 1997), in which dialogue and performance are supported. The teachers bring their instructional design problems to the table and mediate the participation structures in order to address their design problem, which may have been a part of their overall professional goals.

Being reflective and critical <u>together</u> required an element of trust and history within the cohort. The ID class was preceded by a course in educational psychology, taught by the same instructor, in which the teachers examined learning theories (i.e., behaviorism, cognitive psychology, and social constructivism) and wrote papers that juxtaposed these approaches to their teaching. These activities enabled the teachers to name the activities and principles that they had been using in the classroom. No one theory was deemed "better" than the others. Teachers were encouraged to adopt, adapt, or create a personal theory of learning that could be articulated to another interested party (e.g., colleague, parent, friend, etc.). A final reflection paper on their learning beliefs and corresponding instructional practices served as a transition to the instructional design course, in which this self-examination mode continued.

The sequence for the 15-week semester course included three weeks in which the context for instructional design was established. Part of this context was to have these teachers continue to examine their beliefs about learning and teaching, as these became the foundation for judging the veracity and cohesion of their ID project. Teachers were asked to first represent their own design or planning process. This served two purposes: (1) to honor their present conceptions of the ID process, and (2) to provide a tangible representation of a tacit process that could be examined in a more open manner. Throughout their semester, we asked them to update their models based on any new ideas, revelations, or understandings that emerged from either class or their project work.

The core of the ID course content consisted of a 9-phase instructional design sequence, with the principal assessment method involving ongoing drafts and a completed ID project. A mission statement task, the first phase of the sequence, provided a written means to evaluate the extent to which personal beliefs were incorporated in individual projects. Across the semester, we provided overviews and group activities examining important ID

process components, including analysis (i.e., needs assessment), design (lesson sequence, assessment, instructional framework, instructional media, and prototype lesson), and program evaluation. Teachers were introduced to a range of ID tools, including ID models and taxonomies. Teachers formed work groups in which they either all worked on the same project or worked on complementary projects. Class time from each class period was devoted to group work sessions. During the final week we returned to a self-examination in which teachers revised and shared their personal ID models and wrote a self-evaluation of their learning and their responses to the course.

Data Sources And Analysis

Three domains of analysis were identified and explored: we analyzed what teachers designed in their ID projects, how teachers represented their thinking about and planning processes in their ID models, and what teachers said about their teaching after the course. Data sources included teachers' ID projects, their personalized ID models, and self-reports on their learning from a course evaluation.

A recursive process of categorization and theme building were used to investigate our work (e.g., Spradley, 1980). Thirteen completed individual or group projects were available for analysis. Analysis consisted of the extent to which teachers conducted research to inform their understanding of their instructional problem, the extent to which teachers' learning beliefs were consistently and coherently applied throughout the project, and to what degree their "technology component" supported their project. Research efforts were examined in the project's needs assessment. The application of learning beliefs was analyzed by comparing what teachers wrote in their mission statement with their design components. The technology component was examined in the project's instructional media section. Teachers were asked to represent graphically and/or narratively the components and processes they considered in their everyday practice. Nineteen personal ID models were analyzed by describing the features of the visuals metaphor and the language from a written narrative accompanying the visual. Initially, each model was given a label that attempted to encapsulate that teacher's view of teaching. A second step involved assigning these labels to categories with similar labels. The teachers also provided feedback on the impact of the course and master's program on their professional lives in an end-of-the-course questionnaire. Teacher responses were coded as to themes and summarized into categories.

Results

What Teachers Designed: Their ID Projects

All of the projects were based on personal/professional beliefs about what it meant to teach in particular content areas (e.g., spelling, science, video as a persuasive medium, calculator use, aerospace, geography). None of the projects brought forward research findings from texts assigned from the program's previous educational psychology course (Bruer, 1993; Schauble & Glaser, 1996), which examined the complexity of content to be learned and learning environments that supported this learning.

Nine of the 13 projects achieved a consistency of teachers' learning beliefs, expressed through a mission statement, across their project's design components. Four projects did not demonstrate a consistent stance between mission and instructional action. For example, one mission statement expressed a desire to "assist learners to reach their goals through collaborative partnerships" but did not examine what "assistance" or what "collaborative partnerships" meant in his teaching. Another mission statement advocated "active involvement...using a variety of instructional methods...to produce self-directed learners," although the ID document only described direct instruction and strictly adhered to Virginia's Standards of Learning.

Achieving consistency of beliefs across components was not always responsive to learners' needs. One teacher cited being "practical and hands-on" in his mission statement, which was exhibited in activities, but was inadequate to support the conceptual learning called for in the project. Materials in the lesson prototype did not provide any explanation for the conceptual content underlying the activities. The teacher did not conduct research on ways to teach the content or re-evaluate or describe the pre-existing curriculum materials that were inserted into the project. Another student wrote about "collaborative partnerships" but did not specify any affective dimensions in project goals to support these. In another project, in which cooperative groups were stressed, the assessment plan accounted for skill learning without any provisions for social learning goals. Coherence across design components was found in eleven of the thirteen projects. In all eleven instances of coherence, lessons identified goals, which had been determined from the needs assessment. Of the two projects that were judged not to have coherence, a 6-week lesson outline did not match activities with goals, and a geography unit specified goals in a mission statement but were not identified in later design components, although lesson activities were keyed to state standards. Six of the thirteen projects used Virginia's Standards of Learning (SOL's) as goals. Three of the thirteen projects used an activities sequence to address their instructional framework, assessment, and media. Four of the projects minimally described their proposed instructional framework.

A technology component was required in their ID projects, although only the instructional design issues of media selection and use were to be specified. Although this technology component was a major influence in the selection of an instructional problem, teachers identified a full range of instructional media. Chosen media-supported

projects that addressed current teaching (e.g., audio spellchecker, LEGO's™, maps, floral supplies), were mandated for future courses (i.e., graphing calculators), or were innovations (programmable logic controller, orientation video). No research was conducted on how these media choices supported learning. Instructional media rationales were frequently specified within lessons, but without many details on their use.

What Teachers Represented: Their Personal ID Models

Teacher's ID models were examined along two dimensions: the metaphors they constructed and their location in the ID process. Nineteen representations of instructional design included visual metaphors that included a circular cycle, signpost, flower (2), flower garden, kite, dart board, balancing scales, pizza parlor, billiards, passenger train (2), performance stage, triangular puzzle pieces, fish, baseball diamond, steps, and a story. Teachers' views of instructional design were grouped into four categories. The first category, accounting for four teachers, viewed ID as a "sequence," and included the two train models, a continuous cycle, and a four-step model. The second category grouped three teachers' "holistic" views of ID and included three teacher models with flowers as themes. One of these teachers used a flower to represent ID as a complex, dynamic, and systematic process, representing feedback, review, and revision with double-pointed arrows and intersecting lines. As one must be attentive to a flower's health, "good ID must be responsiveness to the learner's health." Another flower model equated an ID task with a garden design task, representing needs assessment as a plot plan and that an analysis of the parts as they relate to the whole plot was necessary. The framework to the plot was viewed as learning principles; however, the teacher viewed this framework as one to "plan, manage, and organize information."

The third category of how nine teachers viewed ID was labeled "process". Examples included a fish "eating" knowledge, sinking billiard balls, and hitting the curriculum "bulls-eye"; in this case, state learning standards, with a dart representing teaching approaches. Other activities included acting out roles on a stage, "running the bases" in baseball, writing a story, and running a pizza parlor. A fourth category, "balance," was used to characterize three teachers, including two special education teachers who viewed their daily teacher lives as unpredictable. One teacher used signposts to represent the decisions to turn left or right. "Turning left" meant facing issues she had no control over, including the demands of curriculum, teacher expectations, and state requirements, while "turning right" meant working with student strengths and weaknesses. The second special education teacher saw ID as a means to balance learner needs and teacher expectations.

Teachers' ID models were also categorized by how they viewed teaching and their location in the process. The first view of teaching was "disseminating knowledge," and included three models concerned with teaching practical skills (horticulture), knowledge (social studies), and meeting objectives (technology education). A second view of teaching was "addressing learner needs" and accounted for four of the 19 models. Models and narrative that matched this label included "growing a squash garden," "attending to a flower's health," designing a garden, and playing with puzzle pieces. A third category viewed teaching as "addressing external expectations," accounting for six models. These models included the teacher as cue ball; rounding the bases on a baseball field; being pulled by a train (the state's standards of learning); and sinking the striped billiard balls (instructional issues) avoiding the solid balls representing time, state standards, and interruptions (the "eight-ball"). The fourth category included the two special education teachers who viewed themselves as reactive, always in the middle, making decisions and balancing expectations for students with expectations of other teachers, parents, and the system.

What Teachers Said About Their Learning

At the end of the course, teachers were asked to reflect on the impact of the program on their professional and personal lives. The possibility of teasing out the impact of just the ID experience was deemed counterproductive given the seamless nature of the program. All 20 respondents reported that the activities made them more aware of their teaching, with 8 stated in an active way that they are agents of change (e.g., "I am more conscious about the choices that I make for instruction."). Four respondents reported a better understanding of the students within their design decisions. Eighteen teachers reported ways that the program had affected their students. While 13 infused ideas from the program indirectly, 5 reported that they showed their students their assignments, shared their struggles with papers, due dates, etc. and so forth. One stated that, "They like knowing I'm also a student – modeling life-long learning."

From a personal perspective, 10 recognized the time, financial, and energy commitment of engaging in reflective professional development. One found the program to be a social outlet. Another reported a newly found self-efficacy as a learner in a demanding intellectual endeavor.

Across their comments, the teachers commented about the revived respect they had for their own profession. One stated that, "My commitment to my job has increased. I really know why I do what I do!" These were the initial signs of individuals willing to critically examine their own teaching and gaining the confidence to share their voices.

Conclusions

Teachers cited a number of benefits of the course for their teaching: looking at planning in an in-depth fashion and creating something they could use in the classroom, improvements in communication, collaboration, problem solving, and creating thinking skills. In terms of instructional design, one student remarked having a "much greater appreciation of the design process now." Teachers cited "different ways to think about the learners" and "forces the teacher to look at lots of details to designing instruction and curriculum."

What these teachers designed and represented was also a product of the political and social constraints of school environment and their personal lives. Finding themselves in the role of student was a new experience for some of these teachers. Juggling a new set of demands on top of their already busy teaching lives challenged all of the teachers. Reflective activities that asked teachers to examine their teaching and learn a new process that scrutinized their teaching was for some a difficult experience. Even with experienced special education teachers who wrote goals every day, the question "What is a goal?" was frequently mentioned. One of us remarked, "We really put a lot of stumbling blocks in their way. They have to start thinking about it and it's now becoming really awkward for them. We're interrupting the flow of what they have and when you do that, they're perplexed."

We found that all of the ID projects relied on personal beliefs on ways to teach their content and to support their design decisions, including their instructional technology component. Furthermore, none of the reading done from a previous educational psychology course was cited in the projects. However, this was not a surprise as some of the teachers in the previous class struggled to see the connection between research and practice, and publicly dismissed the research as not relevant to their needs. While the teachers sometimes found it difficult to reflect on and write about their teaching, even representing their teaching with a model, moving to the next step and making changes in their practice is even more difficult considering the professional and political challenges they face.

The personal ID model task was structured to encourage teachers to represent their own model of ID components, rather than imposing ours or someone else's. The value of visual representations for teachers is, as Elbaz (1983), cited in her study of teacher thinking, to invite, rather than compel, conformity. ID is known for its models on how instruction should be constructed, and we believe that teachers can learn from these models, but what is more productive is encouraging teachers to develop their own. Because the course was a first experience with the process, teacher understanding of the whole process and the relationship of the components to each other were not always understood and represented in their models. Teachers' representations of instructional design tended to adopt aspects of our representation of the process and what we valued. However, their models used personal metaphors that illuminated not only instructional design components but also views of their teaching, as well as their views of students and the school environment. Metaphors provided teachers with a means for "clustering images for exploration and analysis of teacher thinking" (Bullough & Gitlin, 1995, p. 66). Metaphors within these models helped teachers to explore who they think they are, although it was not clear that to us that they were aware of the significance of these representations. Several of the teachers who viewed their teaching lives as balancing the expectations of students and the expectations of other teachers or schooling may not be aware of their loss of voice due to their perceptions of their positions or their preferences for taking responsibility.

One limitation from this brief research summary was not being able to describe in more detail the contexts in which these teachers led their teaching lives, for it is out of these contexts which give rise to teacher voices (Hargreaves, 1996). On the other hand, we have been conscious not to generalize or romanticize what teachers designed, represented, and said into one teacher's voice, a danger in some educational research (Hargreaves, 1996). In this study we tried to include data that represented different aspects of the teachers' voices, including what teachers designed and represented. However, the use of representation needs its own context to more accurately characterize its use. As one teacher remarked from Bullough and Gitlin's (1995) use of written metaphor for teacher examination, "I think the metaphor is actually restrictive in describing ourselves. Maybe a multiple metaphor" (p. 71). Although we have not conducted a careful study of teachers' ID models with the teachers, the task appears useful for the next steps in enabling reflection and voice. Moreover, writing school history, based on Bullough and Gitlin's (1995) guidelines, might be a useful technique for cohort in-service programs to continue teacher examination and to contextualize themes that might emerge from a collaborative analysis of this history.

Significance

Our approach to teaching instructional design consisted of examining a teacher's basis for action, one's learning beliefs, as a key component of the design process, as well as a systematic use of the ID process to analyze, design, and evaluate responsive approaches to instructional problems. Initially, some teachers viewed instructional design as a complex algorithmic procedure. One request from a teacher was illuminating and represents one of instructional design's most mis-characterized issues: "Tell how you can condense instructional design and still be as effective." We admit that a systematic examination of instruction requires time and effort; however, as cited by one teacher at the end of the course, "I now have different ways to think about learners," suggests that the effort is worth it. Instructional design's potential has gone unrealized by its depiction as merely a procedural tool for teachers.

Rather, we advocate ID as a thinking tool, one that supports systematic teacher re-examination and complements existing teacher thinking and practices. The ID course provides teachers with the time, while the ID process provides teachers with tools for reflection on their teaching (Wildman & Niles, 1987). The course provides teachers with a forum to talk openly about the environment in which they work in and how this context may limit the kind of teaching they want to practice. Thus, what is a pragmatic process for action, also represents a tool for critical inquiry.

Another important benefit from our reflexive approach is its co-participatory nature, in which both instructor and student are considered as learners and both continually strive to learn from each other and to continually examine our teaching and learning, and to honor participant thinking and activity. Our efforts have been to improve communication with and between teachers, learn from teachers, set the stage for sustained teacher reflection and examination, and develop habits of systematic inquiry.

ID Instruction represents a significant challenge to anyone who has taught it, owing to the range of systematic components that comprise ID and the investment of time and attention needed to support student learning, particular with authentic design activities. If the view of teachers is that of reflective practitioners (Schön, 1983), then the beliefs and concerns of teachers need to be incorporated somehow within the ID process, as well as within ID instruction. Instructional design can be presented to teachers in ways that honor their beliefs and experiences, prompts a re-examination of their teaching, and encourages heuristic responses to instructional problems. Thus, ID instruction represents not only a significant teaching challenge, but a significant opportunity to help teachers re-examine their teaching and for teachers and designers to learn from each other.

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